

## **PLANT METHODS DEVELOPMENT LABORATORIES**

### **PROGRAM PROFILE**

<b>Goal</b>	To develop and transfer biologically sound plant pest exclusion, detection, suppression, and control technologies and systems for APHIS and it's stakeholders.
<b>Enabling Legislation</b>	7 USC 145; PL 65-64. 7 USC 146, 147a; 148, PL 78-425. Organic Act of 1944. 7 USC 148-148e; 7 USC 450.PL 99-198 (Food Security Act of 1985). 7 USC 150 (Golden Nematode Act of 1948). 7 USC 150aa-jj (Federal Plant Pest Act of 1957). 7 USC 151-56, 167. 7 USC 2801; PL 93-269; Federal Noxious Weed Act of 1974. 7 USC 151 et.seq (Federal Plant Quarantine Act of 1912); PL 87-46 (civil penalties).
<b>Economic Significance</b>	The Plant Methods Development Center System provides technological support to and incorporates research and development products into over \$100 million in operational APHIS programs.
<b>Principal Approach And Methods Used to Achieve Goals</b>	Program provides APHIS with advanced scientific and technological capabilities to protect and improve U.S. agriculture and public health. Methods development supports APHIS programs by optimizing existing pest management practices and by developing new technologies for pest exclusion, detection, survey, and management. This is accomplished by evaluating biocontrol organisms, evaluating new biological and chemical materials, adapting or inventing equipment, providing technical consultation and training, collecting and disseminating pertinent information, participating in strategic and tactical planning, serving as a liaison between APHIS and the research community, and integrating technological advancements into integrated pest management systems. System maintains both rapid response and long range capabilities for serving APHIS and stakeholders.
<b>History</b>	The Otis, Massachusetts, and Whiteville, North Carolina, Centers were established in 1960, the Hoboken, New Jersey, Center in the 1940s, the

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Mission, Texas, Center in the 1950s, and the Phoenix, Arizona, Center in 1990. In FY 1995, the Whiteville and Hoboken Centers combined to form the Oxford Center.

**State and Local Cooperation**

APHIS conducts cooperative programs with State and local agencies and organizations to control or eradicate plant pests and diseases.

**Involvement of Other Agencies**

APHIS applies Agricultural Research Service (ARS) research on crop pests. Program maintains a liaison with ARS; the Economic Research Service; the Cooperative State Research Service; Extension Service; industry; EPA; State agricultural experiment stations; and other international, Federal, or State agencies.

**RESOURCE DATA**

-----Obligations-----

	<u>Direct</u>	<u>Reimbursement</u>	<u>User Fees</u>	<u>Staff-Years</u>
FY 1997	\$4,937,329	--	--	86
FY 1998	\$5,056,687	--	--	80
FY 1999	\$4,784,616	--	--	75
FY 2000 (est.)	\$4,688,000	--	--	73
FY 2001 (est.)	\$4,806,000	--	--	72

	<u>APHIS</u>	<u>Coop</u>	<u>Total</u>	<u>CCC</u>	<u>Contingency Fund</u>
Cum.	\$62,667,611	\$2,170,280	\$64,837,891		

**RECENT ACCOMPLISHMENTS**

**Otis Plant Protection Center**

In FY 1999, the Otis Plant Protection Center in Massachusetts worked with States, local governments, universities, industry, and ARS to develop regulatory treatments and biologically-based management strategies for various exotic pests. These pests included the ALB, GM, and JB. Also, trapping strategies were developed for the pine shoot beetle. Molecular biological tools were used to determine likely source

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populations of Medfly infestations as well as gypsy moths trapped near high-risk ports. Also, the Center continued to support various research projects by providing gypsy moth specimens to numerous customers. In addition, it continued to produce the nucleopolyhedrosis virus (NPV), an environmentally friendly biocontrol agent which is used for gypsy moth control.

**Mission Plant Protection Center**

The Mission, Texas, Plant Protection Center continued improving quality control for the mass rearing of fruit flies, biocontrol agents, and development of non-petroleum based alternatives to malathion bait sprays. Specifically, APHIS standardized diet component quality assurance testing and progressed toward development of a fruit fly attractant for incorporation into traps. Also, the Agency continued conducting field tests for a non-pesticide strategy using pathogens, based on favorable laboratory screening.

**Phoenix Plant Protection Center**

The Phoenix Plant Protection Center worked with universities, industry, and the ARS to develop a biologically-based pink bollworm management system. Also, APHIS continued working with the National Grasshopper Management Board, the University of Wyoming, and the South Dakota Department of Agriculture to provide technical support for grasshopper management and control. Exotic whitefly parasites were tested in field cages and three of the most promising candidates were established in Arizona and California. The Agency also continued developing pesticide tools for boll weevil eradication, including critical data on the rain retention of malathion in cotton and biological and trap system knowledge. Also, APHIS worked with State and regional agencies to develop Geographic Information Systems, Global Positioning Systems, and database applications for Medfly and MFF.

**Niles Biological Control Laboratory**

The Niles Biological Control Laboratory (Michigan) worked cooperatively with the Mission Plant Protection Center (Texas) and State cooperators to improve rearing techniques for producing a key biocontrol agent (the leaf feeding beetle *Galerucella* spp.) for managing

purple loosestrife, a major environmental weed in aquatic habitats. Using these techniques, the Niles Lab produced and shipped over 450,000 beetles to Project cooperators in 19 States. Since 1997, the Niles Lab has also processed samples for the National Karnal Bunt (KB) Survey as well as high priority (export-outbound) samples that required processing within 24 hours. In total, the Niles KB Team processed 832 samples from 15 States in 1999.

### **Oxford Center**

The Oxford, North Carolina, Center provided expertise on the following quarantine treatment matters: testing the fumigant sorption of commercial tarpaulins, cartons, and wrappers; improving APHIS' Plant Protection and Quarantine Treatment Manual; participating in demonstrations of methyl bromide recapture technology in Savannah, Georgia, and Dallas, Texas; providing input on a training manual for hot water immersion treatments; testing and certifying a forced hot air facility for treating Mexican citrus; making presentations at irradiation treatment workshops in Texas and Mexico; providing methodology to facilitate trade and prevent the introduction of invasive pests by addressing quarantine treatment questions raised by industry; developing regulatory treatments (irradiation and heat) for Federal noxious weed seeds; and providing technical support on survey, regulatory, and control programs for several invasive weed species. The Oxford Center also collected data for Vivid Technologies, Inc. to improve their x-ray machine's ability to detect specific agricultural contraband items in luggage.

### **Waimanalo Plant Protection Substation**

The Waimanalo, Hawaii, Plant Protection Substation continued supporting Medfly exclusion efforts. The Hawaii and Gainesville, Florida, Stations continued an extensive cooperative study to optimize APHIS' Medfly detection system. This study included release and recapture of marked sterile flies, geographic information systems, and computer modeling. In Guatemala, the program mass-reared the Tolimán-tsl genetic sexing strain of Medfly for "males only" sterile fly releases in Guatemala, Florida, and California.